

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1. (currently amended): A method of separating a solid phase and a liquid phase in an oil-based mud comprising the step of:

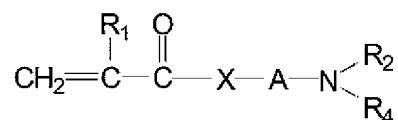
(i) contacting said oil-based mud with a water-in-oil emulsion comprising a polymer derived from at least one water-soluble monomer, wherein said polymer is not dissolved prior to contact with said oil-based mud and wherein the average discrete phase particle size of the polymer is less than about 10 microns;

(ii) mixing said water-in-oil emulsion and said oil-based mud;

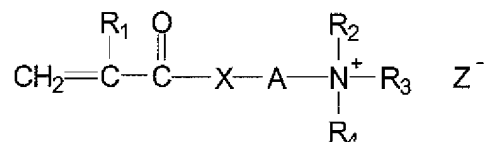
(ii) separating the solid phase and the liquid phase.

2. (original): The method of claim 1, wherein said monomer is a water-soluble vinyl monomer.

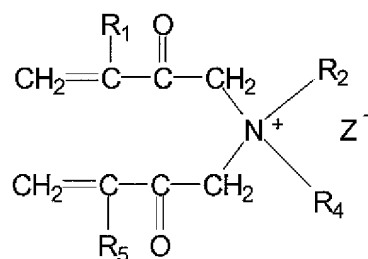
3. (original): The method of claim 1, wherein said at least one water soluble monomer is selected from (alkyl)acrylamide, (alkyl)acrylic acid, N-vinylpyrrolidone, N-vinylacetamide, N-vinylformamide, acrylonitrile, fumaric acid, crotonic acid, maleic acid, hydroxyalkyl methacrylates, 2-acrylamido-2-alkylsulfonic acids wherein the alkyl group contains 1 to 6 carbon atoms, styrene sulfonic acids; and salts of any of the foregoing thereof; or monomers having the structure of formulas I, II or III



Formula I



Formula II



Formula III

wherein  $\text{R}_1$ ,  $\text{R}_2$ , and  $\text{R}_5$  are each independently hydrogen or a  $\text{C}_1$  to  $\text{C}_6$  alkyl;  $\text{R}_3$  and  $\text{R}_4$  are each independently hydrogen, a  $\text{C}_1$  to  $\text{C}_{12}$  alkyl, aryl, arylalkyl or hydroxyethyl; and  $\text{R}_2$  and  $\text{R}_4$  or  $\text{R}_2$  and  $\text{R}_3$  can combine to form a cyclic ring containing one or more hetero atoms;  $\text{Z}$  is the conjugated base of an acid,  $\text{X}$  is oxygen or  $-\text{NR}_6$  wherein  $\text{R}_6$  is hydrogen or a  $\text{C}_1$  to  $\text{C}_6$  alkyl; and  $\text{A}$  is a  $\text{C}_1$  to  $\text{C}_{12}$  alkylene.

4. (original): The method of claim 2, wherein said at least one water-soluble vinyl monomer is selected from the group consisting of (alkyl)acrylamide, (alkyl)acrylic acid and its salts and vinyl sulfonic acid.

5. (original): The method of claim 3, wherein said polymer is a copolymer of an (alkyl)acrylamide monomer and at least one second monomer selected from N-vinylpyrrolidone, N-vinylacetamide, N-vinylformamide, acrylonitrile, acrylic acid, methacrylic acid, ethylacrylic acid, fumaric acid, crotonic acid, maleic acid, hydroxyalkyl methacrylates, 2-acrylamido-2-alkylsulfonic acids wherein the alkyl group contains 1 to 6 carbon atoms, styrene sulfonic acids, vinyl sulfonic acid; and salts of any of the foregoing thereof; or monomers of Formulas I, II or III.

6. (original): The method of claim 3, wherein said polymer is a copolymer of (meth)acrylamide and at least one second monomer selected from the group consisting of N,N-dimethylaminoethyl(meth)acrylate or its salts, quaternary N,N-dimethylaminoethyl(meth)acrylates, tertiary or quaternary N,N-dimethylaminopropyl acrylamides, tertiary or quaternary N,N-dimethylaminomethyl acrylamides and diallyl dimethyl ammonium halides.

7. (original): The method of claim 1, wherein said polymer is anionic and is derived by copolymerization of (meth)acrylamide and (meth)acrylic acid.

8. (original): The method of claim 1, wherein said polymer is anionic and is derived by hydrolysis.

9. (original): The method of claim 1, wherein said polymer is branched or crosslinked.

10. (original): The method of claim 1, wherein the concentration of said polymer in said water-in-oil emulsion is about 10% to about 70% by weight based on the total weight of the emulsion.

11. (original): The method of claim 1, wherein said water-in-oil emulsion is pre-dispersed with oil before contacting with the oil-based mud.

12. (original): The method of claim 11, wherein the concentration of said polymer in said water-in-oil emulsion is about 0.1% to about 10% by weight based on the total weight of the emulsion.

13. (original): The method of claim 1, further comprising the addition of an emulsifier, surfactant or optionally water.

14. (original): The method of claim 13, wherein said surfactant is a sulfosuccinates and/or a sulfosuccinamate.

15. (original): The method of claim 14, wherein said sulfosuccinates is dioctylsulfosuccinate, and said sulfosuccinamate is dicarboxyethyl octadecylsulfosuccinamate, or mixtures thereof.

16. (original): The method of claim 13, wherein said the oil-based mud is contacted with the emulsifier, surfactant or optionally water prior to contact with the water-in-oil emulsion.

17. (original): The method of claim 1, wherein said separating the solid phase and the liquid phase is conducted by mechanical or gravitational separation.

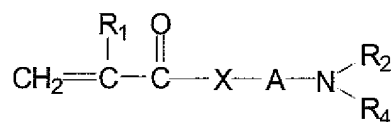
18. (original): The method of claim 17, wherein said mechanical separation is conducted by a centrifuge, cyclone, pressure filtration or vacuum assisted filtration, and wherein said gravitational separation is conducted by a clarifier, thickener or continuous countercurrent decantation.

19. (original): The method of claim 1, wherein said mixing is conducted using a flow mixer, in-line mixer, gas agitation or mechanical mixer.

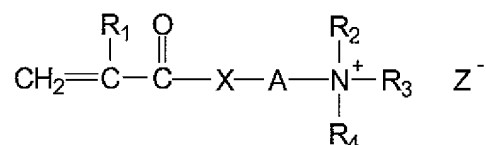
20. (original): The method of claim 11, wherein said pre-dispersed oil is kerosene, diesel, paraffin blends, internal olefins or C<sub>16</sub>-C<sub>18</sub> alkene blends.

21. (original): The method of claim 1, wherein said oil-based mud is an oil-based drilling mud.

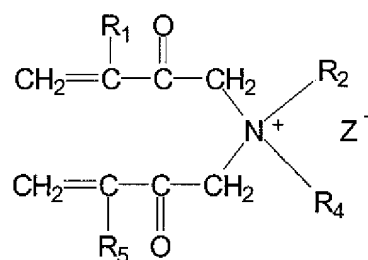
22. (original): The method of claim 21, wherein said at least one water soluble monomer is selected from (alkyl)acrylamide, (alkyl)acrylic acid, N-vinylpyrrolidone, N-vinylacetamide, N-vinylformamide, acrylonitrile, fumaric acid, crotonic acid, maleic acid, hydroxyalkyl methacrylates, 2-acrylamido-2-alkylsulfonic acids wherein the alkyl group contains 1 to 6 carbon atoms, styrene sulfonic acids; and salts of any of the foregoing thereof; or monomers having the structure of formulas I, II or III



Formula I



Formula II



Formula III

wherein R<sub>1</sub>, R<sub>2</sub>, and R<sub>5</sub> are each independently hydrogen or a C<sub>1</sub> to C<sub>6</sub> alkyl; R<sub>3</sub> and R<sub>4</sub> are each independently hydrogen, a C<sub>1</sub> to C<sub>12</sub> alkyl, aryl, arylalkyl or hydroxyethyl; and R<sub>2</sub> and R<sub>4</sub> or R<sub>2</sub> and R<sub>3</sub> can combine to form a cyclic ring containing one or more hetero atoms; Z is the conjugated base of an acid, X is oxygen or -NR<sub>6</sub> wherein R<sub>6</sub> is hydrogen or a C<sub>1</sub> to C<sub>6</sub> alkyl; and A is a C<sub>1</sub> to C<sub>12</sub> alkylene.

23. (original): The method of claim 21, wherein said at least one water-soluble vinyl monomer is selected from the group consisting of (alkyl)acrylamide, (alkyl)acrylic acid and its salts and vinyl sulfonic acid.

24. (original): The method of claim 22, wherein said polymer is a copolymer of an (alkyl)acrylamide monomer and at least one second monomer selected from N-vinylpyrrolidone,

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N-vinylacetamide, N-vinylformamide, acrylonitrile, acrylic acid, methacrylic acid, ethylacrylic acid, fumaric acid, crotonic acid, maleic acid, hydroxyalkyl methacrylates, 2-acrylamido-2-alkylsulfonic acids wherein the alkyl group contains 1 to 6 carbon atoms, styrene sulfonic acids, vinyl sulfonic acid; and salts of any of the foregoing thereof; or monomers of Formulas I, II or III.

25. (original): The method of claim 21, wherein said polymer is a copolymer of (meth)acrylamide and at least one second monomer selected from the group consisting of N,N-dimethylaminoethyl(meth)acrylate or its salts, quaternary N,N-dimethylaminoethyl(meth)acrylates, tertiary or quaternary N,N-dimethylaminopropyl acrylamides, tertiary or quaternary N,N-dimethylaminomethyl acrylamides and diallyl dimethyl ammonium halides.

26. (currently amended): A composition comprising an oil-based mud with a water-in-oil emulsion comprising a polymer derived from at least one water-soluble monomer, wherein said polymer is not dissolved prior to contact with said oil-based mud and wherein the average discrete phase particle size of the polymer is less than about 10 microns.

27. (original): The composition of claim 26, further comprising an emulsifier, surfactant and optionally water.

28. (original): The composition of claim 26, wherein said composition is well-dispersed.